918-18 "Pulse Spray" Mini-Urokinase Infusion for Recanalization of Recently Occluded Saphenous Vein Grafts

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Infusions of 1,000,000–6,000,000 U of urokinase over 17–70 hours have been shown to successfully recanalize recently (2–8 weeks) occluded saphenous vein grafts, however, major bleeding complications are common. These bleeding complications are often related to the systemic fibrinolytic state induced by the large dose of urokinase given during these infusions. In addition, these infusions often place a strain on the cardiac catheterization laboratory scheduling due to their lengthy nature. "Pulse spray" infusions of urokinase have been shown to successfully recanalize peripheral arterial and graft occlusions using a much lower dose of urokinase over a shorter period of time. This procedure requires the placement of a multiple side hole infusion catheter directly in contact with the occlusion followed by frequent injections or "sprays" of small doses of urokinase until recanalization is complete. We sought to determine if "pulse spray" mini-urokinase infusion would shorten the duration and decrease the dose of urokinase infusion required to successfully recanalize recently occluded saphenous vein grafts (SVG).

Methods: Five patients underwent "pulse spray" mini-urokinase infusions during the last six months. The mean age was 72.4. All had unstable angina. The mean age of the occlusion was 3.4 weeks (range 2–6). The target vessel was as follows: SVG→LCx (3), SVG→RCA (1), SVG→LAD (1). Standard angioplasty guiding catheters and guidewires were used. A Roubin® infusion catheter was used to locally spray the urokinase. Heparin was administered to maintain the ACT > 300s during the procedure.

Results: All SVG's were successfully recanalized using the "pulse spray" mini-urokinase infusion. The mean duration of infusion was 52 minutes (range 40–60). The mean dose of urokinase was 650,000 U (range 500,000–750,000 U). All residual SVG stenoses then underwent successful PTCA. No major ischemic (death, CABG, MI) or bleeding complications (bleeding requiring transfusion, vascular repair) occurred.

Conclusion: Thus, "pulse spray" mini urokinase infusions can successfully recanalize recently occluded saphenous vein grafts using a much lower dose of urokinase over a shorter period of time than has previously been reported. Interestingly, major bleeding complications also appear to be reduced. A larger randomized trial will be required to fully evaluate this technique.

918-19 The Effect of Preprocedural Intracoronary Thrombus on Patient Outcome After Percutaneous Coronary Intervention

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The outcome of percutaneous coronary interventions in patients with preprocedural angiographic evidence of thrombus at the target lesion is uncertain. Detailed angiographic and clinical data were prospectively collected from 2,164 patients enrolled in 3 clinical trials with stable and unstable angina undergoing non-emergency percutaneous coronary interventions. Procedural success (<50% final visual stenosis without death or emergency CABG) and the presence of preprocedural intracoronary thrombus, defined as a discrete filling defect at the target lesion, were determined by core laboratory review. Patient age, prior cardiac history, cardiovascular risk factors, and severity of disease were well matched between patients with and without thrombus. Outcomes with 95% confidence intervals were:

Outcomes	Stable Angina	Unstable Angina	
		No Thrombus	Thrombus
	(n = 450)	(n = 1,476)	(n = 238)
Procedural Success	87% (84–90%)	85% (83–87%)	80% (75–85%)
Abrupt Closure	4% (2– 6%)	6% (5– 7%)	11% (7–15%)
In-Hospital			
Death	<1%	1%	0
MI	5%	3%	5%
CABG	2%	4%	9%
Repeat PTCA	3%	3%	2%
Composite Outcome	6% (4–8%)	8% (7–9%)	12% (8–16%)
Six-Month Outcome	27% (23–31%)	29% (27–31%)	34% (28–40%)

Patients with unstable angina and intracoronary thrombus are more likely to have lower procedural success, higher abrupt closure risk, and worse in-hospital clinical outcome. Patients with unstable angina and preprocedural intracoronary thrombus represent a high risk group for which new strategies need to be developed to improve the outcome of percutaneous interventions.

918-20 Performance of Coronary Angioplasty in Patients with Multivessel Coronary Artery Disease: Observations from the Bypass Angioplasty Revascularization Investigation (BARI)

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To gain insight into the strategies and factors influencing the performance of percutaneous transluminal coronary angioplasty (PTCA) in patients (pts) with multivessel coronary artery disease, the procedures of the 915 pts assigned to PTCA in BARI were examined. Within this group, 3,427 angiographically significant (>50% diameter reduction) lesions were identified. The majority of pts had two to six angiographically significant lesions. PTCA was intended for 63.1% of angiographically significant lesions and was attempted in 92.7% of the lesions for which it was intended. Multilesion PTCA was performed in 77.5% of pts and multivessel PTCA in 69.7%. Staging of the PTCA procedures was performed in 17.5% of pts. The number of lesions attempted per pt ranged from 1–9 with most pts (72.6%) having 2–4 lesions attempted. Of lesions present, those between 50–95% were most frequently attempted. Lesions of 99–100% severity and those less than 50% were less likely to be attempted. Other factors significantly ($p < 0.05$) associated with attempting lesions included proximal vessel location, classification of a lesion as being a "culprit" or "clinically significant" or type A or B complexity. Lesions in arteries supplying a small territory or non-viable myocardium were rarely attempted. Thus in pts with extensive multivessel CAD, PTCA is applied judiciously and according to a strategy based on individual pt and lesion assessment. Angiographic anatomic characteristics and the clinical impact of the lesion are the most influential factors.

918-21 Intravascular Ultrasound Evidence of Significant Oversizing of Angioplasty Balloons in Female Patients

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Objectives: Although women may have an increased risk of complications following interventions, the etiology of this gender-related effect remains uncertain. While oversizing of angioplasty balloons is associated with increased complications, no angiographic data have demonstrated inappropriate balloon sizing in women.

Methods: We performed intravascular ultrasound and quantitative angiography in 124 patients (101 males, 23 females) before and after coronary balloon angioplasty. In 51 patients, balloon angioplasty was the primary therapy, while in 73, balloon dilatation was performed as an adjunct to rotational or directional atherectomy. Separate core laboratories, blinded to outcome, measured angiographic and ultrasound dimensions in reference segments and target lesions.

Results	Men	Women	p value
Angio Reference (mm)	3.50	3.29	NS
Ultrasound Reference (mm)	3.37	2.85	0.001
Balloon Size (mm)	3.48	3.27	0.10
Balloon/Angio Ratio	1.00	1.02	NS
Balloon/Ultrasound Ratio	1.06	1.17	0.05

These important differences in the ratio of balloon to ultrasound vessel diameter are partially explained by a greater plaque burden at reference sites in women (ultrasound area reduction of 43.7% vs. 37.6%).

Conclusions: Although balloons were appropriately sized in women when compared to angiographic diameter, significant oversizing of balloon catheters in women was apparent when compared to ultrasound reference segment dimensions. These findings have important clinical implications for coronary interventions in women.

918-22 Effect of Non-target Lesion Events on the Predictive Value of 6-Month Angiography for Late (12 Month) Clinical Outcome After PTCA

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To determine whether the observed discordance between late angiographic and clinical outcomes in clinical restenosis studies (European angiopeptin: clinical but not angiographic benefit; CAVEAT: angiographic but not clinical benefit) is affected by the occurrence of late non-target lesion events (death, myocardial infarction [MI], or remote-site revascularization), we reviewed the outcomes of 1061 successfully-treated patients (<50% stenosis and no death, MI, CABG or repeat PTCA <14 days) enrolled in the American